CLAIMS

1. A playback apparatus for an optical disc on which a first digital stream is recorded, the playback apparatus comprising:

a first reading unit operable to read the first digital stream, part by part, from the optical disc;

a control unit operable to specify, from a secondary recording medium, a second digital stream that is in correspondence with the first digital stream;

a second reading unit operable to read the specified second digital stream, part by part, from the secondary recording medium, in accordance with control by the control unit; and

a playback unit operable to play back, in synchronization, data included in a part read from the optical disc and data included in a part read from the secondary recording medium.

2. The playback apparatus of Claim 1, wherein

the playback unit includes:

a first demultiplexer operable to demultiplex the part of the first digital stream to obtain pieces of video data and pieces of first audio data;

a second demultiplexer operable to demultiplex the part of the second digital stream to obtain pieces of second audio data;

a video decoder operable to decode video data;

an audio decoder; and

a supplying subunit operable to supply either the pieces of first audio data or the pieces of second audio data to the audio decoder, wherein

the playback unit achieves the playback in synchronization by, in a case where the pieces of second audio data are supplied to the audio decoder, synchronizing the decoding of each piece of second audio data by the audio decoder with the decoding of each piece of video data by the video decoder.

3. The playback apparatus of Claim 2, wherein

the part of the first digital stream and the part of the second digital stream are each a packet sequence,

the first demultiplexer performs the demultiplexing at a time indicated by a time stamp on each packet, and

the second demultiplexer performs the demultiplexing at a time obtained by adding a predetermined offset to a time indicated by a time stamp on each packet.

4. The playback apparatus of Claim 2, wherein

the part of the first digital stream and the part of the second digital stream are each a packet sequence,

the video decoder decodes each of the pieces of video data included in the first digital stream at a time indicated

by a time stamp on a packet in which the respective piece of video data is included, and

the audio decoder decodes each of the pieces of second audio data included in the second digital stream at a time obtained by adding a predetermined offset to a time indicated by a time stamp on a packet in which the respective piece of second audio data is included.

5. The playback apparatus of Claim 4, wherein

the secondary recording medium stores therein stream management information in correspondence with the second digital stream, the stream management information including attribute information for the second digital stream and offset information,

the attribute information indicates one of (i) an encoding format of, (ii) a channel of, and (iii) a language in correspondence with, the pieces of second audio data included in the second digital stream, and

the offset information indicates each of the offsets to be added to the time indicated by the time stamp.

6. The playback apparatus of Claim 2, comprising a system register that stores therein a parameter showing a status setting of the playback apparatus, wherein

whether the audio decoder decodes the pieces of first

audio data belonging to the first digital stream or the pieces of second audio data belonging to the second digital stream is determined according to the parameter in the system register.

7. The playback apparatus of Claim 6, wherein

the control unit displays a menu, and

the parameter in the system register is updated in accordance with a selection from the displayed menu.

8. The playback apparatus of Claim 6, comprising a receiving unit operable to receive a user operation, wherein

the parameter in the system register is updated in accordance with the user operation received by the receiving unit.

9. The playback apparatus of Claim 1, wherein

the secondary recording medium has playlist information recorded thereon, the playlist information showing a starting point and an ending point of a playback section in the first digital stream in correspondence with a starting point and an ending point of a playback section in the second digital stream,

the playback apparatus comprises a playback control unit operable to interpret the playlist information, and

the readings by the first and the second reading units and the playback by the playback unit are performed based on

a result of the interpretation by the playback control unit.

10. The playback apparatus of Claim 9, wherein

the first digital stream and the second digital stream are each made up of a plurality of access units,

the access units in the first digital stream include pieces of video data, the pieces of video data each including at least a piece of picture data encoded by intra-frame encoding,

the part of the first digital stream read by the first reading unit is access units in the first digital stream, starting from an access unit that includes the starting point of the playback section and ending with an access unit that includes the ending point of the playback section, and

the part of the second digital stream read by the second reading unit is access units in the second digital stream, starting from an access unit that includes the starting point of the playback section and ending with an access unit that includes the ending point of the playback section.

11. The playback apparatus of Claim 10, wherein

the optical disc has map information recorded thereon, the map information showing a playback starting time of each access unit in correspondence with an address of the respective access unit, and

the control unit obtains, by referring to the map

information, addresses of the access unit that includes the starting point and the access unit that includes the ending point.

12. The playback apparatus of Claim 10, wherein

the access units making up the second digital stream are equal in number to the access units making up the first digital stream, and

a playback time period of the access units making up the second digital stream is equal to a playback time period of the access units making up the first digital stream.

13. The playback apparatus of Claim 9, comprising a memory, wherein

the control unit judges whether or not a newest version of the playlist information is recorded on the secondary recording medium, and in a case where the judgment is in the affirmative, the control unit controls the secondary recording medium so that the newest version of the playlist information is read from the secondary recording medium into the memory, and

the interpretation of the playlist information by the playback control unit is to interpret the newest version of the playlist information read into the memory.

14. The playback apparatus of Claim 9, wherein

the secondary recording medium has a plurality of package areas each of which corresponds to a different one of a plurality of optical discs to be mounted to the playback apparatus,

in each of the package areas, package management information that includes storage information is recorded, and

the playback control unit takes out the playlist information from a location within the package areas being indicated by the storage information, so as to interpret the playlist information.

15. The playback apparatus of Claim 9, wherein

the package management information further includes alternative information,

the playback control unit checks, prior to the interpretation of the playlist information, if the playlist information is damaged, and

in a case where the playlist information is damaged, the playback control unit interprets playlist information indicated by the alternative information.

16. The playback apparatus of Claim 9, wherein

the secondary recording medium has a program recorded thereon, the program showing a procedure for playback control of the first and the second digital streams using the playlist

information,

the playback apparatus comprises an execution module for executing the program recorded on the secondary recording medium, and

the playback control unit interprets the playlist information based on a function call within the program.

17. The playback apparatus of Claim 16, wherein

the playback control is to perform the playback using the playlist information under a condition, and

the condition is defined by a system parameter which is a value stored in a register in the playback apparatus and shows a status setting of the playback apparatus.

18. The playback apparatus of Claim 16, wherein

the playback apparatus judges whether or not the secondary recording medium has a newest version of the program recorded thereon, and

the execution module executes the program in a case where the newest version of the program is recorded on the secondary recording medium.

19. The playback apparatus of Claim 1, comprising:

a first buffer for storing the part of the first digital stream read from the optical disc; and

a second buffer for storing the part of the second digital stream read from the secondary recording medium, wherein

the playback unit receives the part of the first digital stream and the part of the second digital stream being supplied via the first buffer and the second buffer.

20. The playback apparatus of Claim 1, wherein

the secondary recording medium has a plurality of package areas each of which is assigned to a different one of a plurality of optical discs to be mounted to the playback apparatus,

when an optical disc is mounted to the playback apparatus, the control unit controls the first reading unit so that medium information is read from the mounted optical disc and specifies, out of the plurality of package areas in the secondary recording medium, a package area that corresponds to the read medium information, and

the second digital stream read by the second reading unit exists in the specified package area.

21. The playback apparatus of Claim 20, comprising a memory, wherein

the optical disc has playlist information, a program, and package management information recorded thereon,

the playlist information shows a starting point and an ending point of a playback section in the first digital stream

in correspondence with a starting point and an ending point of a playback section in the second digital stream,

the program shows a procedure for playback control of the first and the second digital streams using the playlist information,

the package management information is management information for the first digital stream, the second digital stream, the playlist information, and the program,

the control unit controls the second reading unit so that any of the playlist information, the program, and the package management information that exists within the package area is read from the package area into the memory, and

the control unit controls the first reading unit so that any of the playlist information, the program, and the package management information that does not exist in the package area is read from the optical disc into the memory.

22. The playback apparatus of Claim 21, wherein

in a case where the playlist information or the program having an identification number in common is recorded both on the optical disc and in the package area, the control unit controls the second reading unit so that the playlist information or the program recorded in the package area is read into the memory, and

in a case where the playlist information or the program

having an identification number is recorded only on the optical disc, the control unit controls the first reading unit so that the playlist information or the program recorded on the optical disc is read into the memory.

23. The playback apparatus of Claim 22, wherein

the control unit controls the readings of the first and the second digital streams by making the first and the second reading units read digital streams having identification information in common, among a plurality of digital streams recorded on the optical disc and in the package area, and

in a case where a digital stream having an identification number is recorded only on the optical disc, the control unit controls the first reading unit so that the digital stream recorded on the optical disc is read.

24. The playback apparatus of Claim 20, wherein

inside each of the package areas are two or more version areas that correspond to two or more versions of what is recorded on the optical disc, respectively,

the control unit specifies, out of the two or more version areas within the specified package area, a version area that corresponds to a desired version, and

the second digital stream read by the second reading unit exists in the specified version area.

25. The playback apparatus of Claim 24, wherein

each of the version areas has a version number that shows a version to which the version area corresponds, and

the control unit specifies the version area by specifying, out of the two or more version areas within the specified package area, a version area that has a newest version number.

26. The playback apparatus of Claim 24, wherein

the control unit displays a list of a plurality of versions of a package and receives a user operation for selecting one of the versions of the package, and

the control unit specifies the version area by specifying, out of the two or more version areas within the specified package area, a version area that corresponds to the version of the package selected by the user operation.

27. The playback apparatus of Claim 24, comprising a memory, wherein

the optical disc has playlist information, a program, and package management information recorded thereon,

the playlist information shows a starting point and an ending point of a playback section in the first digital stream in correspondence with a starting point and an ending point of a playback section in the second digital stream,

the program shows a procedure for playback control of the first and the second digital streams using the playlist information,

the package management information is management information for the first digital stream, the second digital stream, the playlist information, and the program,

the control unit controls the second reading unit so that any of the playlist information, the program, and the package management information that exists within the specified version area is read from the specified version area into the memory,

the control unit controls the second reading unit so that any of the playlist information, the program, and the package management information that does not exist in the specified version area is read from a version area being in an older version than the specified version area into the memory, and

the control unit controls the first reading unit so that any of the playlist information, the program, and the package management information that does not exist in any version area is read from the optical disc into the memory.

28. The playback apparatus of Claim 27, wherein

in a case where the playlist information or the program having an identification number in common is recorded both on

the optical disc and in the plurality of version areas, the control unit controls the second reading unit so that the playlist information or the program recorded in the specified version area is read into the memory,

in a case where the playlist information or the program having an identification number is recorded only on the optical disc, the control unit controls the first reading unit so that the playlist information or the program recorded on the optical disc is read into the memory, and

in a case where the playlist information or the program having an identification number is recorded only in a version area that corresponds to an older version than the specified version area, the control unit controls the second reading unit so that the playlist information or the program recorded in the older version area is read into the memory.

29. The playback apparatus of Claim 28, wherein

the control unit controls the readings of the first and the second digital streams by making the first and the second reading units read digital streams having identification information in common, among a plurality of digital streams recorded on the optical disc and in the specified version area,

in a case where a digital stream having an identification number is recoded only on the optical disc, the control unit controls the first reading unit so that the digital stream

recorded on the optical disc is read, and

in a case where a digital stream having an identification number is recorded only in a version area being in an older version than the specified version area, the control unit controls the second reading unit so that the digital stream recorded in the older version area is read.

30. The playback apparatus of Claim 20, wherein

each of the package areas has package general information recorded therein, the package general information including a network address,

the playback apparatus comprises a download unit operable to download an update kit for upgrading versions from a server indicated by the network address in the package general information and write the downloaded update kit into one of the package areas in the secondary recording medium, and

the second digital stream is included in the update kit.

31. The playback apparatus of Claim 30, wherein

the package general information includes date and time information, and

in a case where a current date and time is within a period indicated by the date and time information, the control unit controls the second reading unit so that the second digital stream included in the update kit is read, and

in a case where the current date and time is past the period indicated by the date and time information, the control unit does not have the second digital stream read.

32. The playback apparatus of Claim 30, wherein

the package general information includes a flag that indicates whether or not there is a possibility an update kit for updating to a new version is supplied, and

the download unit performs the download in a case where the flag indicates that there is the possibility of the update kit being supplied.

33. The playback apparatus of Claim 1, wherein

when downloading the update kit, the download unit generates, on the secondary recording medium, a new package area that corresponds to the optical disc, assigns identification information to the new package area, and writes the update kit into the new package area,

the identification information matches medium information attached to the optical disc, and

the second digital stream read by the second reading unit is within the update kit written into the new package area by the download unit.

34. The playback apparatus of Claim 33, wherein

in a case where a package area that corresponds to the optical disc exists in the secondary recording medium, the download unit generates a new version area within the package area, the new version area corresponding to a new version of what is recorded in the optical disc,

the download unit writes the downloaded update kit into the new version area, and

the second digital stream read by the second reading unit is within the update kit written into the new version area by the download unit.

35. The playback apparatus of Claim 34, wherein

in each of the package areas, a plurality of pieces of version management information are recorded, the plurality of pieces of version management information being management information for versions of what is recorded on the optical disc, and

when having written the downloaded update kit into a version area, the download unit sets recording position information indicating a position at which the update kit is written into a piece of version management information for a version corresponding to the update kit.

36. The playback apparatus of Claim 34, wherein

the package area that corresponds to the optical disc

exists in the secondary recording medium,

a plurality of pieces of version management information are recorded in the package area, the plurality of pieces of version management information being management information for versions of what is recorded on the optical disc,

the second digital stream belongs to one of the versions of what is recorded on the optical disc, and

when having finished playing back the first and the second digital streams, the playback unit generates a piece of information that indicates a playback ending point and sets the piece of information into a piece of version management information for a version to which the second digital stream belongs.

37. The playback apparatus of Claim 1, wherein

the playback unit includes:

a first demultiplexer operable to demultiplex the part of the first digital stream to obtain pieces of video data and first sub-image units;

a second demultiplexer operable to demultiplex the part of the second digital stream to obtain second sub-image units;

a video decoder operable to decode video data;

an image decoder; and

a supplying subunit operable to supply either the

first sub-image units or the second sub-image units to the image decoder, wherein

the playback unit achieves the playback in synchronization by, in a case where the second sub-image units are supplied to the image decoder, synchronizing the decoding of each second sub-image unit by the image decoder with the decoding of each piece of video data by the video decoder.

38. The playback apparatus of Claim 37, wherein

the part of the first digital stream and the part of the second digital stream are each a packet sequence,

the first demultiplexer performs the demultiplexing at a time indicated by a time stamp on each packet, and

the second demultiplexer performs the demultiplexing at a time obtained by adding a predetermined offset to a time indicated by a time stamp on each packet.

39. The playback apparatus of Claim 37, wherein

the part of the first digital stream and the part of the second digital stream are each a packet sequence,

the video decoder decodes each of the pieces of video data included in the first digital stream at a time indicated by a time stamp on a packet in which the respective piece of video data is included, and

the image decoder decodes each of the second sub-image

units included in the second digital stream at a time obtained by adding a predetermined offset to a time indicated by a time stamp on a packet in which the respective second sub-image unit is included.

40. The playback apparatus of Claim 1, wherein

the part of the first digital stream on the optical disc includes one or more pieces of first video data that are taken from one or more angles,

the part of the second digital stream on the secondary recording medium includes one or more pieces of second video data that are taken from another angle, and

the playback unit includes:

a first demultiplexer operable to demultiplex the part of the first digital stream to obtain the pieces of first video data;

a second demultiplexer operable to demultiplex the part of the second digital stream to obtain the pieces of second video data;

a video decoder operable to decode video data;

a supplying subunit operable to supply either the pieces of first video data or the pieces of second video data to the video decoder, wherein

the playback unit achieves the playback in synchronization by, in a case where the pieces of second video

data are supplied to the video decoder, synchronizing the decoding of each piece of second video data by the video decoder with the decoding of the each piece of first video data.

41. The playback apparatus of Claim 40, wherein

the part of the first digital stream and the part of the second digital stream are each a packet sequence,

the first demultiplexer performs the demultiplexing at a time indicated by a time stamp on each packet, and

the second demultiplexer performs the demultiplexing at a time obtained by adding a predetermined offset to a time indicated by a time stamp on each packet.

42. The playback apparatus of Claim 40, wherein

the part of the first digital stream and the part of the second digital stream are each a packet sequence,

the video decoder decodes each of the pieces of first video data included in the first digital stream at a time indicated by a time stamp on a packet, and

the video decoder decodes each of the pieces of second video data included in the second digital stream at a time obtained by adding a predetermined offset to a time indicated by a time stamp on a packet.

43. The playback apparatus of Claim 40, wherein

the two or more pieces of first video data included in the first digital stream are divided into a plurality of portions,

the plurality of portions are alternately arranged and recorded on the optical disc,

the one or more pieces of second video data included in the second digital stream are also divided into a plurality of portions and recorded on the secondary recording medium, and

a length of a playback time of the portions that make up the second digital stream is equal to a length of a playback time of the portions that make up the first digital stream.

44. A playback apparatus for an optical disc on which a first digital stream is recorded, the playback apparatus comprising:

a secondary recording medium;

a first reading unit operable to read the first digital stream, part by part, from the optical disc;

a second reading unit operable to read, part by part, a second digital stream recorded in a server;

a control unit operable to control the first reading unit and the second reading unit so that the reading from the secondary recording medium is performed in parallel with the reading from the optical disc; and

a playback unit operable to take out and play back

necessary pieces of data from the parts read from the optical disc and the secondary recording medium, wherein

the secondary recording medium has stream management information and playlist information recorded thereon,

the playlist information shows a starting point and an ending point of a playback section in the first digital stream in correspondence with a starting point and an ending point of a playback section in the second digital stream,

the stream management information is management information for the second digital stream, and

at least one of the stream management information and the playlist information includes access destination information indicating an address of the server storing the second digital stream.

45. An optical disc on which a first digital stream and a flag are recorded, the flag indicating whether or not there is a possibility an updated version of what is recorded on a recording medium is supplied, wherein

the updated version includes a second digital stream and correspondence information which shows the first digital stream on the optical disc in correspondence with the second digital stream.

46. The optical disc of Claim 45, wherein

the correspondence information is playlist information which shows a starting point and an ending point of a playback section in the first digital stream in correspondence with a starting point and an ending point of a playback section in the second digital stream.

47. The optical disc of Claim 45, wherein

the optical disc has address information and date and time information recorded thereon, the address information showing an address of a location from which the updated version is obtained and the date and time information showing an expiration date and time of the updated version,

playback using second playlist information included in the updated version is performed before the expiration date and time, and

playback using the second playlist information included in the updated version is not performed after the expiration date and time.

48. The optical disc of Claim 45, wherein

the updated version includes a program showing a procedure for playback control using a system parameter, the system parameter being a parameter that shows a status setting of a playback apparatus.

49. A recording medium to be used as a secondary to an optical disc on which a first digital stream is recorded, wherein

the recording medium has a second digital stream and correspondence information recorded thereon, the correspondence information showing the second digital stream on the recording medium in correspondence with the first digital stream.

50. The recording medium of Claim 49, wherein

the correspondence information is playlist information which shows a starting point and an ending point of a playback section in the second digital stream in correspondence with a starting point and an ending point of a playback section in the first digital stream.

51. The recording medium of Claim 50, further having stream management information recorded thereon, the stream management information including attribute information for the second digital stream and offset information, and

the offset information shows a difference between a value of a time stamp on the second digital stream and a value of a time stamp on the first digital stream.

52. The recording medium of Claim 50, having a plurality of package areas each of which corresponds to a different one

of a plurality of optical discs to be used with the recording medium, wherein

the second digital stream and the playlist information are positioned in one of the plurality of package areas.

53. The recording medium of Claim 52, wherein

each of the package areas has general information recorded thereon, the general information including address information and date and time information,

the address information shows an address of a location from which an updated version is obtained, and

the date and time information shows an expiration date and time of the updated version.

54. The recording medium of Claim 52, wherein

each of the package areas has general information recorded thereon, the general information including storage information and alternative information,

the storage information shows in which one of a plurality of areas in the recording medium the playlist information is positioned, and

the alternative information shows alternative playlist information to be used in place of the playlist information in a case where a playback apparatus judges that the playlist information is damaged.

55. The recording medium of Claim 52, wherein

inside each of the package areas are two or more version areas that correspond to two or more versions of what is recorded on the corresponding optical disc, and

the second digital stream and the playlist information are positioned in one of the package areas.

56. The recording medium of Claim 50, having a program recorded thereon, the program showing a procedure for playback control using the playlist information.

57. The recording medium of Claim 56, wherein

the procedure for playback control is to perform playback using the playlist information under a condition, and

the condition is defined by a system parameter which shows a status setting of a playback apparatus.

58. The recording medium of Claim 50, wherein

the first digital stream includes video data and audio data, and

the second digital data includes audio data.

59. The recording medium of Claim 50, wherein

the first digital stream includes video data and

sub-image units, and

the second digital stream includes sub-image units.

60. The recoding medium of Claim 50, wherein

the first digital stream on the optical disc includes two or more pieces of first video data that are taken from two or more angles, and

the second digital stream on the recording medium includes one or more pieces of second video data that are taken from another angle.

61. The recording medium of Claim 60, wherein

the two or more pieces of first video data included in the first digital stream are divided into a plurality of portions,

the plurality of portions are alternately arranged and recorded on the optical disc,

the one or more pieces of second video data included in the second digital stream are also divided into a plurality of portions and recorded on the recording medium, and

a length of a playback time of the portions of the first digital stream is equal to a length of a playback time of the portions of the second digital stream.

62. The recording medium of Claim 50, wherein

the first digital stream and the second digital stream are each made up of a plurality of access units,

the access units making up the first digital stream include pieces of video data,

the access units making up the second digital stream are equal in number to the access units making up the first digital stream, and

a playback time period of the access units making up the second digital stream is equal to a playback time period of the access units making up the first digital stream.

63. The recording medium of Claim 62, wherein

the optical disc has map information recorded thereon, the map information showing a playback starting time of each access unit in correspondence with a size of the respective access unit, and

by referring to the map information, a first reading unit obtains addresses, on the optical disc, of an access unit that includes the starting point and an access unit that includes the ending point.

64. The recording medium of Claim 62, wherein

the access units making up the first digital stream are equal in number to the access units making up the second digital stream, and

a playback time period of the access units making up the second digital stream is equal to a playback time period of the access units making up the first digital stream.

65. A playback program for an optical disc on which a first digital stream is recorded, the playback program having a computer execute:

a first reading step of reading the first digital stream, part by part, from the optical disc;

a control step of specifying, from a secondary recording medium, a second digital stream that is in correspondence with the first digital stream;

a second reading step of reading the specified second digital stream, part by part, from the secondary recording medium, in accordance with control by the control step; and

a playback step of playing back, in synchronization, data included in a part read from the optical disc and data included in a part read from the secondary recording medium.

66. A playback method for an optical disc on which a first digital stream is recorded, the playback method comprising:

a first reading step of reading the first digital stream, part by part, from the optical disc;

a control step of specifying, from a secondary recording medium, a second digital stream that is in correspondence with

the first digital stream;

a second reading step of reading the specified second digital stream, part by part, from the secondary recording medium, in accordance with control by the control step; and

a playback step of playing back, in synchronization, data included in a part read from the optical disc and data included in a part read from the secondary recording medium.